

In the Specification:

Please replace the paragraph beginning on page 1, line 8 with the following rewritten paragraph:

A storage area network (“SAN”) is an increasingly popular storage technology. Fig. 1 is a prior art diagram 5 illustrating a SAN 15 with two clusters of server nodes 10 and 20, and multiple clients 30, 32, and 34. Each node within one of the clusters 10 and 20 is a computer running a single or multiple operating system instances. Each node in a cluster is connected to storage media. A cluster is a set of one or more nodes coordinating access to a set of shared storage subsystems, typically through a storage area network. As shown in Fig. 1, the first cluster 10 includes two nodes 12 and 14, and the second cluster 20 includes four nodes 22, 24, 26, and 28. Each of the clusters 10 and 20 operates as a single homogenous cluster environment. In the configuration shown here, both the nodes 12 and 14 in the first cluster 10, and the nodes 22, 24, 26, and 28 in the second cluster 20 are individually connected to the shared storage system 15. The interconnection of each of the nodes in the first cluster and each of the nodes in the second cluster 20 with the shared storage system 15, allows each of the nodes in the clusters 10 and 20 to access the shared storage system. In a cluster environment, the cluster provides a particular service to the clients. Accordingly, Fig. 1 is an illustration of one form of a cluster environment showing the connection of each of the nodes in each cluster to the shared storage system together with connection of each client to a local area network in communication with the clusters of nodes.

Please replace the paragraph beginning on page 3, line 15 with the following rewritten paragraph:

Another known leader election solution is the quorum resource lock protocol. There are several variations to this protocol of which one variation uses the quorum resource as an additional vote in the majority vote protocol. Another variation is known as a challenge defense protocol wherein the entire SCSI bus is reset to unlock the quorum resource. The SCSI bus reset is disruptive to all nodes, and the algorithm also takes ~~take~~ a long time to converge on the leader. The challenge defense protocol utilizes algorithms that require time to converge with multiple nodes attempting to acquire the lock. As such the challenge defense protocol is both disruptive and slow to converge.

Please replace the paragraph beginning on page 3, line 22 with the following rewritten paragraph:

Finally, another known prior art solution combines the quorum resource lock and majority vote protocols to provide an extra vote for the node that owns the quorum resource lock to break a tie during a network partition that evenly split the cluster of nodes. However, this solution neither ~~to~~ keeps the cluster available for the newly elected leader before concluding the protocol, nor does it take into account cluster availability via client reachability.

Please replace the paragraph beginning on page 6, line 11 with the following rewritten paragraph:

Fig. 2 is a flow chart 40 illustrating the process of detecting loss of communication with any node in the cluster, including the cluster leader node. The first step in detecting the loss with any node or the cluster leader is for each node to periodically monitor the state of operation of neighboring nodes 42. In a preferred embodiment, heartbeat messages are periodically sent to neighboring nodes for the monitoring process. Following step 42, a test is conducted to determine if any of the nodes in the cluster have ceased communicating with any of the neighboring nodes 44. If the response to the test at step 44 is negative, this is an indication that each node is in communication with the neighboring nodes in the cluster. After a predetermined time interval, the process will return to step 42 to repeat the monitoring process. However, if the response to the test at step 44 is positive for any of the nodes in the cluster, this is an indication that there is a fault in the cluster. There are different types of cluster faults. For example, the cluster leader node may have been subject to a fault associated with the hardware, software, or a network card. Each of these faults would result in the availability of a single cluster grouping with all of the remaining nodes in the cluster reachable from other surviving nodes of the cluster. Another type of fault is a network fault which would result in partition of the cluster into two disjointed grouping of nodes, wherein nodes within a grouping would be in communication only with other nodes in the grouping, *i.e.* two cluster groupings may have been formed with nodes within a grouping being in communication only with other nodes in the same grouping. Following a determination at step 44 that there is a loss of connectivity in the cluster, a test is conducted to determine if the neighboring node is the cluster leader 46. If the fault resides in an individual node aside from the cluster leader, the cluster leader is sent a message regarding the fault associated with the individual node in the cluster ~~48~~ 50. Thereafter, a test is conducted to determine if the informing node has received a response from the cluster leader 50. If a response from the cluster leader is received, the cluster leader performs a membership view update 52. However, if a response from the cluster leader is not received, this is an indication ~~indicated~~ that the cluster leader is not reachable 54. Similarly, if the response to the test at step 46 is positive,

this is another indication that the cluster leader is not reachable 54. Each node that is aware of the cluster fault sends a communication to all remaining nodes in the cluster informing them of the cluster fault 56. In the event of a loss of communication with the cluster leader subject to a network fault, each node will eventually become aware of the loss of the cluster leader since the cluster leader's neighbors or a neighbor in the other group will inform everyone. Accordingly, the first step in electing a cluster leader is to determine if there is a loss of communication in the cluster between any set of neighboring nodes.